The Cornerstone of Human Future

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Abstract: The Education drives the Future of Humanity. The Wishes and Visions of Humankind have to drive the Education. What is the final goal of Education? To bring up a healthy, emotionally mature, wise, knowledgable nourisher of life, who understands and feels the reality, based on ethics, humanism and compassion, as essential characteristics of a human being, and who is ready to act according to these values. How to achieve that goal? Due to the inevitable development of technology it is necessary to develop a new paradigm of the future principles of educational systems. There are two possible approaches: The Naturo-Humanistic and the Technological, driven by Machine Intelligence, the greatest temporary achievement. In the Technological sense, things are happening at an unbelievable speed, and the human being as an individual, and their collective, has no time to adjust to those changes. There are no clear visions of human society development, despite the informational connectedness and globalisation. In the Naturo-Humanistic sense, it has to be very clear whom we are educating, what we like to achieve with the education, and what is the framework, i.e. the educational environment (social, economical etc.). Due to unconscious, unconscientious and harmful behaviour of people towards the Nature, the ecological consciousness of the interconnectedness of all and everything in the Earth's ecosystem is what has to be thought to children from earliest age. Education must strive towards Wisdom, as knowledge is the knowledge of information, and Wisdom is the know-how of applying knowledge to any problem solving. Knowledge wants to be "used", but only Wisdom is aware of possible future consequences of the application of knowledge.

Keywords: Philosophy of Education, Knowledge, Wisdom, Technology, Nature Ecosystem, Human Society

Introduction

Ancient Greeks thought about the future as being behind them and they were looking forward at the past(Maul, 2008). This approach, though seemingly strange to us, is absolutely proper from the viewpoint of behaviour in any moment, as it is always based on past experience (knowledge), and is physically completely correct, as we always see things in the past, because the light has to come to us, or the sound, or the smell, or whatever other

sense of environment we use. Each and every element of the Universe has its own present, and all other individual elements' presents are for each of them in the past. Time is inextricably connected with the notion of existence and being itself (Heidegger,1967).

Illustration 1. A view into the future from any present

Consequently, the future can only be projected based on our previous knowledge and experience, and has to be envisioned, as for us to be able to steer our efforts in a specific, whished for, direction. As each moment of the future becomes a moment of the past, we can see and analyse the consequences of our previous steps. But without a vision, which we have to base on the analysis of our knowledge and our wishes, it is impossible to steer towards any future goal.

Education Drives the Future of Humanity

In the context of Human civilisation, it is the Education that drives the future of humanity. The Education, which says to the kids what they want, what they expect, what they may expect, what they have to wish, or what they may wish, how they may, or have to, approach their lives, how and where they can or may not gather knowledge, and what they may, must, or may never, know or even ask.

The Wishes and Visions of Humanity have to drive the Education

The Wishes and the Visions of Humanity are extremely important, as collective wishes and visions steer our civilisation from present to present into the future. Though individually, and at the level of social and political sub-systems, the wishes and visions are very often quite disparate, there is a global need for our future sustenance on our beautiful planet Earth, and the visions of achievement of a stable viable ecosystem can be readily derived from the basic common ethical principles, basic common human needs, and the already quite vast knowledge on cybernetically viable ecosystems. These globally ethical visions have to drive the Education. We have to have some vision of what we want in the future, and then we can organize Education towards that

envisioned goal.

But what would be those visions of the future of our civilisation? Do we have them? Would it be something like the future depicted in Illustration 2? Do we want to be puppets on some kind of strings, and use old technology to build some kind of primitive huts? Or is that visionless vision a desparate state of complete civilisation's ruin? Do we tend towards that?

Illustration 2. A clear Vision of Human Civilisation Wishes and Aspirations

It is really important to have a vision. If we look at all the older science fiction from the 20th century, it can easily be seen that it gives visions which drove our civilisation last 50 to 100 years. In that wast base of fears, wishes and visions, all the problems with computers, robots, machine intelligences, androids, virtual worlds, etc. already deeply explored and contemplated. Do androids really dream of electric sheep? (Dick, 1968) Is Data property to be disassembled and internally inspected at will, or is he an individual, a person with the right to dignity, life, integrity and self-determination? (Star, 1991) What does it mean "I Robot"? (Asimov, 1950) There are many many ethical problems contemplated, while giving warnings about consequences of misuse of technologies (both material and social) (Orwell, 1949) (Huxley, 1932).

But, in addition to the exploration of sociological and psychological themes, there are also societies developed and technologies envisioned which paint a much brighter nearer or further future of our civilisation. Probably the most influental science fiction "universe" that presently shapes the form of our technological visions is the vast Star Trek series. Its influence on modern technology seems to stem mainly by the fact that "technology geeks" were always fascinated by the ideas of the series writers. And many of them we realised, at least in a similar form / usage (smartphones as tricorders, medical scanners of all sorts, computers which can understand human language and assist in a vast area of fields, 3D printers/plotters and scanners as replicators, universal translators, at least for many human languages, physicists are contemplating impulse and warp drive etc.) (Roddenberry,1932). The present question is, do we, after several disruptive leaps in technology, and the still

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mostly incomprehensible difference of life in a matter based local, and life in an information based global society, have a kind of idea what we actually want as a Civilization, a vision for the future to tend towards?

The Final Goal of Education

The final goal of Education is

> A healthy, emotionally mature wise and knowledgeable nourisher of Life,
>
> A human being who understand and feels the Reality,
>
> An ethical, compassionate Humanist,
>
> A human who acts according to ethics, knowledge and Wisdom.

This is the Final Goal of Education.

And it is worth preserving the beauty of our planet, and preserving us on this beautiful planet. Remember, we have no other planet to go to, if we mess this one up completely!

How to Achieve the Goal of Education?

Technological Education?

Should we go into Technological Education? We are already years and years (and years) in technological education. Actually the trend can be traced back to the emergence of Rationalism, and the consequential philosophies of Materialism, or Physicalism, in the modern age (although both philosophical directions stem from before CE, and started giving technological results, they were superseded by strong spiritual and religious convictions from early CE in Europe). The relatively recent step from religious/spiritual approach to a almost "mechanical" materialism was certainly aided by the emergence of Dialectic Idealism of Hegel (Hegel, 1807), and than its transformation into the Dialectic Materialism of Engels (Engels, 1925) and Marx.

Such materialistic philosophical stance certainly aided our quite deep understanding of matter and energy, and all technologies which came out of it. However, it does not aid in the understanding of information, communication and now, with the emergence of electronic brains (Machine Intelligence), pressing questions about the notions of intelligence, consciousness, ethics, morality etc. The necessary transformation towards a civilisation that understands that we humans are just a tiny, though potent and disruptive, part of the Earth's lively ecosystem, is not aided by the deeply ingrained (probably even archetypal) notion that humans are the rulers of all on Earth (cf. e.g. Genesis 1:26, Genesis 1:28, Psalm 8:6-8(The Holy Bible 2011)in western sub-civilisation), as the terms used in the original (e.g. stewardship) are differently interpreted: whether it's an exploitative control, responsible stewardship, or a combination of both.

And in that materialistic technological education we teach people technology and techniques, we stream them into specific, quite narrow, areas, we teach them matter and energy, we train them in manipulation, but we tend

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to forget about philosophy, forget about sociology, forget about ethics, forget about spirituality... Because if we look at what actually this techno education did to us and our planetary home, we have to be very concerned about the path we chose, and change the path towards a better Vision sooner, rather than later or never.

Then is it perhaps the naturo-humanistic education, or some kind of combination of them two? Because if we look at what actually this techno education did to us and our planetary home, we have to be very concerned about the path we chose, and change the path towards a better Vision sooner, rather than later or never.

Figure 1 is an example how quickly our civilization consumes more and more and more all kinds of energy sources (Ritchie, 2021). And, quite interestingly, despite all political proclamations and buzzwordy promotion, it can be seen that the "renewables" and comparable sources (modern biofuels, solar, wind and water and nuclear energy) source a very small percentage of full energy consumption. The rest is a huge amount of consumption of natural resources, like traditional biomass, coal, oil and gas. Yet we also have to have it on our mind that we are actually presently causing the Sixth Mass Extinction Event (Ceballos, et al.,2017). The previous one was when the dinosaurs got extinct (except the birds).
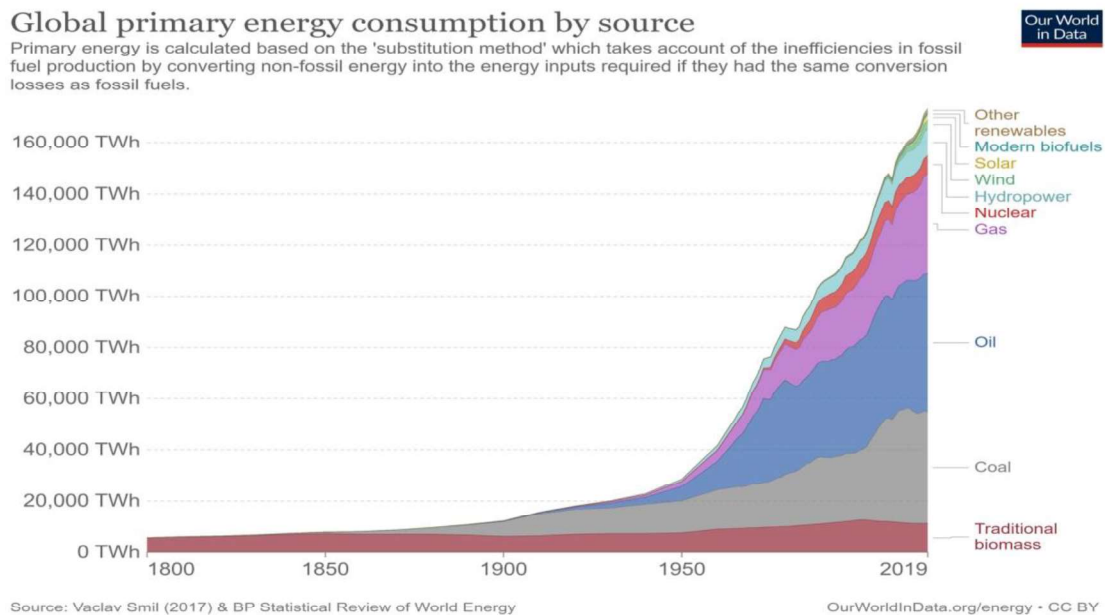

Figure 1. Sources and energy consumption through last 200 years. From [12].

Not to mention the fact that we are depleting important natural resources (e.g. lithium, cobalt etc.) (and depleting them by using humans in inhuman conditions (Gross, 2023)) for the ability to store electricity for cars, laptops, phones, and all other kinds of consumer goods. And that the presently prevailing production philosophies are "life-cycle management" and "production cost is all", which directly harms the environment on all levels through, for example, non-repairable and non-exchangable embedding of such electricity storage

elements.

What future do we actually stream towards, in our lazy attitude? From the above facts it is obvious that there is no clear vision, no sense of responsibility, no common civilisational goals, just overblown individualism on all levels, including the ethical concerns "free" corporatism. And the trends towards the development of a Technosociety, with all of its possible negative consequences.

But a Human is a Living Being. Is the vision of our humanity's development for humans to be converted into some memory, saved on a memory stick and uploaded into the cloud, to be there searching for eternal existence? Until the electricity, is of course, available, and the cloud provider exists and has us backed-up. Until the technology is still compatible.

It is important to mention here one very interesting and important work about planetary intelligence (Frank, et al.,2022). Every planet has to have its own intelligence which emerges self-organisingly and autopoietically (Gershenson,2015) from the lowest levels. Figure 2 shows the development phases of global planetary intelligence, with approximate ratios of cybernetic processes (Emergence, Networks, Semantic Information, Complex Adaptive System and Autopoiesis, as cited by the Authors). At the lowest level a planetary ecosphere is just a Geosphere (geo comes from the name of Earth, however it applies to any planet in the Universe). On the level of a Geoshpere (popularly, partly wrongly, known as the Mineral Kingdom) the planet is primarily self-organising through emergence of networking (communication, influences). The next level is the Immature Biosphere, when biological beings start to exist, and it is driven by all mentioned cybernetic processes, albeit on a smallish scale and with weak intensity. Further development of planetary intelligence leads to the emergence of a Mature Biosphere. This is a highly intelligent environment, with all cybernetic processes proportionally intensive. We had the opportunity to live in such a Mature Biosphere just several hundreds years ago, actually until the emergence of the Industrial Revolution, which started around 1760, when biological power (animals, humans) was gradually substituted by mechanical power. This emergent property caused the evolution towards the phase of Immature Technosphere.

And that is the problem. Regarding our behaviour, we are presently in the early stage of the Immature Technosphere. This abrupt change of phase represents a heavy disturbance on the ecosystem, as it has to completely re-adapt on the new situation, and the coordination of all necessary elements is not yet achievable. Therefore the level of global planetary intelligence during the Immature Technosphere phase is significantly lower than during the Mature Biosphere phase.

We should put all our educational efforts into really getting further into a Mature Technosphere, because we will not survive well, if we survive, living in an Immature Technosphere, as this is arguably the most dangerous phase of planetary development. To which extend did the techno-evolution contribute to us? To the extend that we in peace look at wars, tolerate hunger knowing the huge gap in needs, destroy the planet for the comfort of consumerism and "well-being". And in the same time we were never so ill: just look at the quantity of drugs
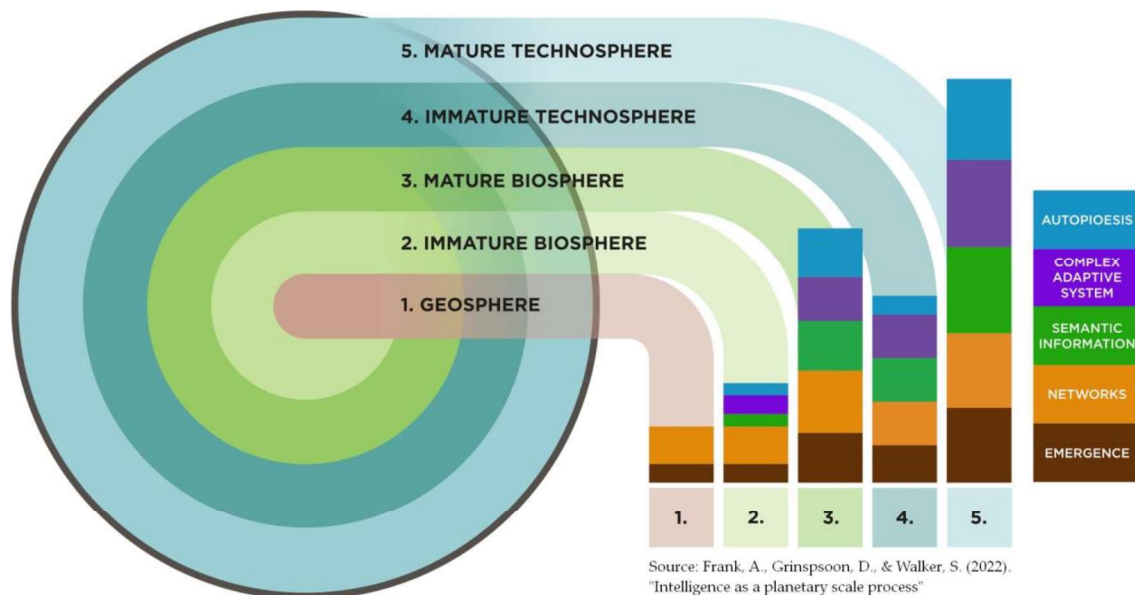
consumed per capita in the techno-world (OECD, 2021).

Figure 2. Global planetary intelligence development. From [15].

Naturo-Humanistic Education!

Therefore we have to have a kind of naturo-humanistic education. We need it! We necessitate a new Educational Paradigm, whose aim is to establish a balanced ecosystem. We can't escape machines. We can't escape electronic brains, the intelligent machines. We can't escape all the things we have. And we shouldn't! We have to embrace them, but embrace them in a positive way. So the aim, and vision, of such education is actually to make a balanced ecosystem of Nature, Humans and Machines.

Three are main questions to be answered by each educator:

- Whom do we educate?
- What do we want to achieve?
- What is the educational environment (social, economic...)?

These essential questions have to be answered for each educational effort, and the education, with a vision of the global aim, has to be adapted according to the circumstances.

What has to be taught?

- Ethics, primarily;
- Ecology, as a Science of the Whole, not the so-called "Ecology", the buzzword of modern days, and the "Ecologists", which see some little, particular problem, and then they insist on it - but by not perceiving the

whole Earth's ecosystem (including the near-Earth space), they most often do not pass the Filter of Appropriateness (discussed further);

- Structure of Social Organizations, an extremely important educational element;
- Individual Rights and Obligations of each and everybody;
- Principles of Knowledge Gathering;
- Principles of Wisdom Development, because Education has to strive towards Wisdom.

The School for Tomorrow

There are many elements of schools which may need to be adapted to new education paradigms. However, here we will mention only two important aspects which may lead to higher motivation and better understanding and knowledge buildup. The first one is more oriented towards the environment and school space, whereas the other is more oriented towards temporal management of education. We will not delve here into the use of intelligent machines in the future of education, as this is not the main focus of this article.

According to Branimir Makanec, a school should actually be a library and laboratory type space, where free communication between all ages of interested pupils and scholars freely exchange their knowledge, insights, experiments, thoughts and problems. Teachers are here not to dictate ex cathedra, but to answer questions and to show ways towards knowledge and wisdom. Such a schooling space, a kind of "Multimedia Center", would encompass all types (as many as possible) of human activities, from manual to intellectual to creative, with appropriate tools and instruments for a certain level of understanding, and all types of documentation sources, physical and virtual. The openness of such a school to all interested, independent of age, would allow two-way transfer of knowledge and experience between human generations, and allow life long possibility of education of individuals on any level (Makanec,2023). A similar approach was used between 1972 and 1995 in Zagreb at the Multimedia Centre, founded by Božo Težak and Branimir Makanec, a schooling and experimenting place dedicated to, then, newest computer and education technologies, with extraordinary results (MMC, 2014).

A temporal aspect of schooling has remained unchanged for centuries, and that is the division into small, generally 45 minutes segments, where segments of different knowledge areas follow one after the other with a short intermission between them. The theory of the 45 minute segments is that, specifically younger, people have problems with keeping attention for much longer at once. However this approach, though possible at the very begin of education, when there is just two or three areas to cover, soon becomes very confusing and does not allow proper in-depth study of any subject matter during the short time interval assigned to it. With a growing number of fields of education in a school, the timing table of each particular education subject becomes messed up with completely unrelated fields. Though, in the education of adults we never mix different subject matter in small, randomly scattered chunks, but we educate on one and only one main subject matter in large temporal chunks of several hours, or even several days. Imagine that you have to take education in several unrelated fields, and they are all temporally mixed up. We never do that with adults. However, we still do it with kids and young adults, i.e. students. Therefore this schooling principle has to be changed, and larger temporal

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chunks have to be allocated to individual areas of knowledge. For example on Monday and Tuesday morning is Mathematics, on Tuesday afternoon is Nature, on Wednesday is Nature, on Friday morning Language and afternoon Literature etc., arranged in such a way that all subject matter gets appropriate amount of time during the school-year, and taking into account the regularity of temporal repetition of the subject, to avoid forgetting. Such an approach would drastically ease the job of teachers, as they could have enough continuos time to present a meaningful whole, not repeating the same short theme several times in a row in different classes, and therefore have more time for individual work with the pupils. The disciples would gain much from this approach, as a longer span of involvement in the same study area would allow much better integration of knowledge, raise interest and motivation and allow for individual pacing through the material. We teach adults in such a way, why don't we do it with the children?

The Rainbow

Ultraviolet - Visions
Wisdom, Prudence, Conscience, Responsibility, Holism

Violet - Interference
Security, Limits of Expansion, Nature–Human–Machine Interference

Indigo - Cooperation
Ethics, Information Use, Redundancy, Knowledge Gathering and Preservation

Blue - Communication
Information, Knowledge, Interaction, Languages

Green - Nature
Environment, Health, Well-Being, Backup Systems, Global Ecosystem

Yellow - Appropriateness Filter
Consequences

Orange - Creativity
Stimulation, Ideas, Education

Red - Matter
Resources, Products

Infrared - Energy
Efficiency, Garbage, Quality

Figure 3. The Rainbow Ecosystem Model

The Rainbow is a model of a holistic view based on the archetypes of colours, and gives a natural way of organizing the knowledge and the subsystems into having the whole of necessary components to be viable systems. As the Rainbow model is more thoroughly elaborated in (Šojat & Skala,2019) (Šojat & Skala,2020), here we will pay attention to just a few important points.

Firstly, Education itself is in the Orange sub-system, as its main purpose is the stimulation of knowledge gathering through ideas and creativity. However, ideas and creations produced by the Orange subsystem may well not pass the Yellow Appropriateness Filter.

Probably the most important element for a stable ecosystem is the Yellow the Appropriateness Filter, as it is necessary to always think about all possible, narrower or wider in scope, local or global consequences of any action we take and of any idea we have. This is actually the Wisdom Filter.

Another essential subsystem here to be mentioned is Indigo, Cooperation. It includes essentials like Ethics, but also Knowledge Gathering and Preservation, i.e. necessary Redundancy. Our present day techno-civilisation has completely forgotten how to preserve knowledge on a long run. We live in an extremely fast changing technological environment, where digital media still used just 10 years ago hardly find appropriate hardware to be read or written. How do we intend to preserve our knowledge gathered presently with such a tempo, and saved on digital media, in few hundred or few thousand years (as e.g. much of the knowledge of the civilisations of Sumer and Akkad was preserved for thousand of years on clay tablets)? Don't we realise that knowledge has to last thousands of years? Will any future archeologist be able to have any notion of our life and achievements?From historical facts, the best medium to preserve knowledge is carving in hard stone.

And finally to mention the Ultraviolet, Visions, a subsystem about which we wrote quite a lot in this work. And Violet, the Visions, necessitate Wisdom, Prudence, Conscience, Responsibility, and, naturally, Holism. As opposed to Ultraviolet Wisdom, Knowledge is Blue, and comes with Communication.

Knowledge vs. Wisdom

Knowledge is only Knowledge of Information, so it it likes to be "used". You have knowledge and you use it to gain more knowledge, or to do or achieve something.

But then, on the other hand, when talking about Wisdom, Wisdom is actually the knowledge on how to apply knowledge. The know-how of knowledge application. Wisdom is is aware of possible future consequences of application of knowledge, as it has an ingrained yellow filter of appropriateness.

Conclusion

In conclusion, we underscore the profound influence of our understanding of time, visions of the future, and the role of education in shaping the direction of civilisation development. Reflecting on the ancient Greek perspective of time, it posits that our actions are guided by the knowledge and experiences of the past. This positions our understanding of the past as an integral tool for shaping our future visions.

We stress the fundamental role of education as the shaper of these visions, urging a redirection of current educational systems that often emphasize techno-materialistic aspirations at the cost of holistic human development. There are compelling arguments for the urgency to shift from an immature technosphere, marked by rampant environmental degradation and societal problems, to a mature technosphere characterized by

sustainability, balance, and an improved global planetary intelligence.

The proposed naturo-humanistic educational paradigm aims to establish equilibrium between nature, humans, and machines, emphasizing the importance of ethics, holistic ecology, social structures, individual rights and obligations, and principles of knowledge gathering and wisdom development. This approach seeks to guide students to become wiser, more aware citizens who can navigate and shape the future with knowledge, wisdom, and a deep sense of ethical responsibility.

In furtherance of this, the Rainbow model provides a holistic view, sorting knowledge into different subsystems characterized by various colours. Each subsystem encapsulates different aspects of knowledge, and the interplay between them fosters a more comprehensive and wise application of knowledge.

Finally, we make an important distinction between knowledge and wisdom. It posits that while knowledge involves understanding and using information, wisdom is about applying knowledge in a manner that is conscious of potential future outcomes. This necessitates the use of an appropriateness filter, adding an ethical and prudential dimension to our knowledge application.

In essence, the future of our civilisation, marked by technological advancements and ethical considerations, rests on our ability to integrate our past knowledge with future visions through an educational system that values wisdom, cooperation, sustainability, and holistic human development. It's a call to action, for educators and policy makers, to reevaluate and reconstruct the present educational system for a more sustainable and balanced future.

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